

# Notice of Allowability

Application No.

10/688,951

Examiner

CamLinh Nguyen

Applicant(s)

HRLE, NAMIK

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## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 4/24/2007.
2. ☒ The allowed claim(s) is/are 1-5, 8-15, 18-25 and 28-30.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application   |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>5/17/07</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                        |
|  | 9. <input type="checkbox"/> Other _____   |

### DETAILED ACTION

1. This office Action is response to amendment filed on 4/24/2007 and the result of interview on 5/16/07.
2. Applicant's amendments to claims 1 – 30 are acknowledged. Consequently, claims 6- 7, 16 – 17, 26 – 27 have been cancelled. Claims 1 – 5, 8 – 15, 18 – 25, 28 – 30 are currently pending.

### EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Stuart Shapiro on 5/16/07.

The application has been amended as follows:

♦ **CANCEL claims 6 – 7, 16 – 17, 26 – 27.**

♦ **REPLACE claim 1 as follow:**

1(Currently amended). A method of processing a query in a database management system, the method comprising:

(a) generating a preferred access path for a query with at least one variable at execution time, wherein said preferred access path is generated based upon a first value for each variable in the query produced and received during the execution time;

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(b) storing information related to said query, said first value for each variable and said preferred access path, wherein step (b) further includes:

(b.1) determining a unique indicator unambiguously denoting a category of values that cause the generation of the same access path and choosing a category, wherein said category is at least one of:

a category of values causing a table-space scan access path,

a category of values causing an index-scan access path,

a category of values causing an index-access access path, and

a category corresponding to a cardinality range of said first value;

(c) determining whether to regenerate said preferred access path for use with subsequent execution of the same query using a second value for each variable in that query produced and received during said subsequent execution, wherein said determination is based upon a comparison of the stored information related to said first value for each variable received during said execution time with information related to said second value for each variable received during said subsequent execution; and

(d) regenerating said preferred access path for said query in response to said comparison indicating that said information related to said second value received during said subsequent execution differs sufficiently from said stored information related to said first value received during said execution time to enable generation of an access path different than said preferred access path.

**◆ REPLACE claim 3 as follow:**

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3(Currently amended). The method of claim 1, wherein step (b.1) further includes:

(b.1.1) generating a unique identifier unambiguously denoting the query.

♦ **REPLACE claim 4 as follow:**

4(Currently amended). The method of claim 1, wherein step (b.1) further includes:

(b.1.1) storing said first value for each variable independently.

♦ **REPLACE claim 5 as follow:**

5(Currently amended). The method of claim 1, wherein step (b.1) further includes:

(b.1.1) determining a frequency distribution of said first value for each variable.

♦ **REPLACE claim 8 as follow:**

8(Currently amended). The method of claim [[7]] 1, wherein step (c) includes:

(c.1) categorizing said second value for each variable.

♦ **REPLACE claim 11 as follow:**

11(Currently amended). A program product apparatus having a computer readable medium with computer program logic recorded thereon for processing a query in a data management system, said program product apparatus comprising:

an optimizer module for generating a preferred access path for a query with at least one variable at execution time, wherein said preferred access path is generated based upon a first value for each variable in the query produced and received during the execution time;

a storage module for storing information related to said query, said first value for each variable and said preferred access path, for determining a unique indicator unambiguously denoting a category of values that cause the generation of the same access path, and for choosing a category, wherein said category is at least one of a category of values causing a table-space

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scan access path, a category of values causing an index-scan access path, a category of values causing an index-access access path, and a category corresponding to a cardinality range of said first value; and

a functional module for determining whether to regenerate said preferred access path for use with subsequent execution of the same query using a second value for each variable in that query produced and received during said subsequent execution, wherein said determination is based upon a comparison of the stored information related to said first value for each variable received during said execution time with information related to said second value for each variable received during said subsequent execution and for regenerating said preferred access path for said query in response to said comparison indicating that said information related to said second value received during said subsequent execution differs sufficiently from said stored information related to said first value received during said execution time to enable generation of an access path different than said preferred access path.

**◆ REPLACE claim 18 as follow:**

18(Currently amended). The program product of claim [[17]] 11, wherein the functional module categorizes said second value for each variable.

**◆ REPLACE claim 21 as follow:**

21(Currently amended). A system for the storage and retrieval of data comprising:

an optimizer for generating a preferred access path for a query with at least one variable at execution time, wherein said preferred access path is generated based upon a first value for each variable in the query produced and received during the execution time;

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a storage unit for storing information related to said query, said first value for each variable and said preferred access path, for determining a unique indicator unambiguously denoting a category of values that cause the generation of the same access path, and for choosing a category, wherein said category is at least one of a category of values causing a table-space scan access path a category of values causing an index-scan access path, a category of values causing an index-access access path, and a category corresponding to a cardinality range of said first value; and

a functional unit for determining whether to regenerate said preferred access path for use with subsequent execution of the same query using a second value for each variable in that query produced and received during said subsequent execution, wherein said determination is based upon a comparison of the stored information related to said first value for each variable received during said execution time with information related to said second value for each variable received during said subsequent execution and for regenerating said preferred access path for said query in response to said comparison indicating that said information related to said second value received during said subsequent execution differs sufficiently from said stored information related to said first value received during said execution time to enable generation of an access path different than said preferred access path.

♦ **REPLACE claim 28 as follow:**

28(Currently amended). The system of claim [[27]] 21, wherein the functional unit categorizes said second value for each variable.

***Allowable Subject Matter***

4. Claims 1 – 5, 8 – 15, 18 – 25, 28 – 30 are allowed.

5. Claims 1 – 5, 8 – 15, 18 – 25, 28 – 30 are renumbered as 1 – 24 respectively.

The following is an examiner's statement of reasons for allowance: in independent claims 1, 11, and 21, a method, apparatus, system for processing a query in a database management system comprising the teaching of regenerating the preferred access path for use with a subsequent execution of the same query based upon a comparison of information related to the values of the variables within the queries, taken with the other limitations of the claim, were not disclosed by, would not have been obvious over, nor otherwise fairly disclosed by the prior art of record.

6. The dependent claims, being further limiting, definite and fully enabled by the Specification, are also allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CamLinh Nguyen whose telephone number is (571) 272 - 4024. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on (571) 272 - 4080. The fax phone number for the organization where this application or proceeding is assigned is 571 – 273 - 8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nguyen, Cam-Linh

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A handwritten signature in black ink, appearing to read "Nguyen Cam-Linh", is written over a horizontal line.

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